

ABSTRACT

A robust sensor that incorporates the necessary physical structure and thermal characteristics is capable of measuring fluid flow and properties under harsh environmental conditions. The sensor die is made of a material with thermal conductivity tailored to provide the thermal transmission characteristics necessary to avoid saturation of the sensor, thus enabling the measurement of high mass flux airflow and liquid properties under high pressure and often harsh environments not previously available for silicon based sensors. The robust sensor further has internal vias for back-side electrical connection, thus avoiding electrical and mechanical interference with the measurements. All of these features come together to provide a microsensor which is capable of reliable, i.e. stable, wide dynamic range and rapid-response operation under harsh environments.